

REMARKS

Claims 1-28 and 30-45 are currently pending in this application. Claims 1-3, 25 and 42 are currently amended. Claim 29 is canceled. Claim 1, 4, 21, 25, 42 and 45 are independent. Claims 45-49 are withdrawn.

The allowance of claims 21-24 and the indication of allowable subject matter with respect to claims 7-12, 14-16, 27, 28 and 31-38 is noted with appreciation.

Rejection Under 35 U.S.C. §112

Claim 1 is rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, claim 1 is allegedly incomplete for omitting essential structural cooperative relationships of elements including a gap between the necessary structural connections. Applicant has amended claim 1 to recite a transducer comprising: (1) a housing; (2) vibrating hardware *disposed at least substantially within the housing, the vibrating hardware including an electrical signal carrier physically connected to the housing and structured to carry an electrical signal;* and (3) damping liquid *disposed within the housing for surrounding the vibrating hardware.* (*Emphasis added*).

Applicant respectfully submits that claim 1 clearly and unambiguously recites the necessary structural connections between the elements of claim 1. In particular, the vibrating hardware is currently recited as being “disposed at least substantially within the housing, the vibrating hardware including an electrical signal carrier physically connected to the housing and

structured to carry an electrical signal”, whereas the damping liquid is recited as being “disposed within the housing for surrounding the vibrating hardware”.

In view of the above, Applicant respectfully requests the withdrawal of the rejection of claims 1 under 35 U.S.C. §112, second paragraph.

Rejection Under 35 U.S.C. §102

Claims 1-5, 13, 20, 25-26, 29, and 41, are rejected under 35 U.S.C. §102(b) as being anticipated by Kikuchi et al. U.S. Patent No. 5,371,428 (“Kikuchi”).

Kikuchi discloses a piezoelectric transducer including a case 1, a piezoelectric diaphragm 2, an adhesive 3, acoustic resistance sheet 4 and another adhesive 5. Referring to FIGS. 1 and 2, case 1 has an inner space 11 and a hole 12 provided on wall section 13 that forms the inner space 11. Wall section 13 has a recessed area 14 surrounding the hole 12. Piezoelectric diaphragm 2 is bonded to staged surface 15 of case 1 using the adhesive 3. Additionally, acoustic resistance sheet 4 is bonded onto the wall section 13 using adhesive 5 that is filled into recessed area 14 to close off the hole 12. Kikuchi fails to disclose the use of a damping fluid within the housing for surrounding the vibrating hardware of the transducer.

The Office Action states that Kikuchi discloses the use of “damping fluid disposed within the housing to at least partially surround the vibrating hardware”. However, Kikuchi merely discloses the use of: (1) a first adhesive 3 for bonding the piezoelectric diaphragm 2 to the staged surface 15 of case 1; and (2) a second adhesive 5 for bonding acoustic resistance sheet 4 to the wall section 13 of case 1. It is respectfully submitted that Kikuchi utterly fails to disclose a transducer having a housing filled with damping fluid for surrounding the vibrating hardware.

Independent claim 1 of the present invention recites “damping liquid disposed within the housing for surrounding the vibrating hardware.” Kikuchi fails to disclose a transducer including damping liquid disposed within the housing for surrounding the vibrating hardware, and therefore fails to anticipate claim 1.

Independent claim 4 recites “damping liquid disposed within the housing to substantially surround at least one of the electrical signal carrier and the magnetic member.” Kikuchi fails to disclose a transducer including damping liquid disposed within the housing to substantially surround at least one of the electrical signal carrier and the magnetic member, and therefore fails to anticipate claim 4.

Independent claim 25 has been amended to recite “damping liquid disposed within the housing to substantially surround at least one of the electric signal carrier and the magnetic member.” Kikuchi fails to disclose a transducer including damping liquid disposed within the housing to substantially surround at least one of the electric signal carrier and the magnetic member, and therefore fails to anticipate claim 25.

In view of the above, it is respectfully submitted that Kikuchi fails to anticipate independent claims 1, 4 and 25. It follows that: (1) claims 2-3 are not anticipated by Kikuchi by virtue of their dependence from claim 1; (2) claims 5, 13 and 20 are not anticipated by Kikuchi by virtue of their dependence from claim 4; and (3) claims 26, 29, and 41 are not anticipated by Kikuchi by virtue of their dependence from claim 25.

Rejection Under 35 U.S.C. §103(a)

Claims 6 and 30 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kikuchi et al. Independent claims 4 and 25 are distinguished from Kikuchi as set forth hereinabove. Claims 6 and 30 depend from claims 4 and 25, respectively.

In view of the above, it is respectfully submitted that Kikuchi fails to render obvious claims 6 and 30.

Claims 17-19, 39, 40 and 42-44 are rejected under U.S.C. §103(a) as being unpatentable over Kikuchi et al. in view of Fishman et al. U.S. Patent No. 5,153,363 (“Fishman”). Claims 17-19 depend from independent claim 4, while claims 39 and 40 depend from independent claim 25. Independent claims 4 and 25 are distinguished from Kikuchi as set forth hereinabove. Fishman fails to cure the deficiencies of Kikuchi by providing a teaching for a transducer including damping liquid disposed within the transducer housing for surrounding vibrating hardware.

Independent claim 42 of the present invention has been amended to recite that the housing is “substantially filled with damping fluid.” Kikuchi fails to disclose a transducer including a housing that is substantially filled with damping fluid, and therefore fails to anticipate claim 42. Fishman fails to cure the deficiencies of Kikuchi by providing a teaching for a transducer including a transducer housing that is substantially filled with damping fluid.

In view of the above, it is respectfully submitted that Kikuchi fails to render obvious claims 17-19, 39, 40 and 42-44.

Conclusion

Applicant respectfully submits that claims 1-28 and 30-45 are currently in condition for allowance. The Commissioner is hereby authorized to charge any fee required or refund any overpayment to our Deposit Account No. 50-0683, in the name of Luce, Forward, Hamilton & Scripps LLP.

Respectfully submitted,

10-24-2005

Date



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